

REMARKS/ARGUMENTS

Claims 1 and 3-20 are pending. The Office Action objects to claims 1-13 due to informalities, rejects claims 1, 6, 14, 18, and 20 under 35 U.S.C. §112, rejects claims 1-5 under 35 U.S.C. §103 as unpatentable over Kilpatrick (U.S. 6,742,124) in view of Chan (U.S. 6,697,844) and Duffey (U.S. Pub. 2004/0243501), and rejects claims 6-20 under §103 as unpatentable over Kilpatrick in view of Haigh (U.S. Pub. 2003/0004716), Chan, and Duffey. These rejections are respectfully traversed.

By this Amendment, claims 1, 6, and 14 are amended and claim 2 is canceled. Support for the amendments can be found at least in Figures 2B, 3, and 5, at page 3, lines 2-5; page 7, lines 13-19; page 8, lines 1-3; and page 14, line 1 – page 15, line 6, and throughout the specification, drawings, and claims as originally filed. No new matter has been added.

Interview Summary

Applicants thank the Examiner for the courtesy extended to Applicants' undersigned representative during the in-person interview conducted December 3, 2008. During the interview, amendments to overcome the §101 rejections were identified. Other claim amendments consistent with those presented herein were discussed. Kilpatrick, Chan, and Duffey were discussed, and arguments as described herein were presented by Applicants' representative. The Examiner indicated that further consideration would be given to the claims and cited art upon submission of a written reply.

Claim Objections

The Office Action objects to claims 1-13 as directed to non-statutory subject matter. The claims are amended as discussed at the December 3 interview, rendering these objections moot. Withdrawal of the objections is respectfully requested.

35 U.S.C. §112 Rejections

Claims 1, 6, 14, 18, and 20 stand rejected under §112, ¶ 2, due to use of the phrase "automating data entry, processing or reporting for a database." Applicants respectfully disagree with the Office Action's conclusion that this phrase is an "incomplete claim limitation." However, solely to advance prosecution of the present application, these claims are amended to

recite “automating at least one of data entry, processing, or reporting” and to re-order claim features for clarity. Withdrawal of the rejections is respectfully requested.

35 U.S.C. §103 Rejections

To support a *prima facie* case of obviousness, the Examiner must demonstrate that each feature recited in the claims is found in the cited art, or provide explicit reasoning to support the finding that the features would be obvious to one of skill in the art at the time the invention was made. See M.P.E.P. §§ 2141, 2142. The Office Action asserts that each and every claimed feature is found in at least one of the cited publications. Applicants respectfully disagree.

Independent claim 1 recites, *inter alia*,

calculating a Levenshtein matrix of a first string and a second string; ...
determining a longest diagonal of equal hamming distance within the Levenshtein matrix; and
determining a substring **corresponding to the longest diagonal within said Levenshtein matrix**, the substring being the **largest common substring** of the first and second strings.

Independent claims 6 and 14 recite similar features. The Office Action admits that Kilpatrick fails to disclose determining a largest common substring, but asserts that Chan and Haigh describe this feature. However, the claims require more than just separately calculating a Levenshtein matrix and determining a largest common substring. Therefore, even if the cited publications are combined, they do not result in the claimed methods.

As discussed during the December 3, 2008 interview, Kilpatrick uses a Levenshtein matrix to determine whether a received series of system calls is sufficiently different to acceptable sets of calls to indicate a possible intrusion. (See, e.g., col. 9, lines 26-35.) Kilpatrick merely uses a Levenshtein matrix to measure the magnitude of difference between two sequences. There is no suggestion that the generated Levenshtein matrix in Kilpatrick can also be used to identify the **largest common substring** between two strings, and especially no indication of how one of skill in the art would do so. For at least this reason, Kilpatrick fails to disclose or suggest determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings as recited in claims 1, 6, and 14.

Similarly, Chan and Haigh each merely discloses a separate and distinct method for calculating a largest common substring of two strings. However, the methods disclosed for identifying the largest common substring are simply unrelated to a Levenshtein matrix, and neither reference suggests that a Levenshtein matrix (or any similar construct) can be used to calculate or identify a largest common substring. Neither Chan or Haigh suggests how one of skill in the art would use a Levenshtein matrix to calculate a largest common substring, or that such a calculation is even possible. Thus, Chan and Haigh each fails to disclose or suggest determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings as recited in claims 1, 6, and 14.

Further, as discussed during the interview, the cited publications do not result in the claimed methods even if combined as suggested by the Office Action. Kilpatrick merely describes an intrusion detection system that compares known-good system call sequences to potential intrusion-related sequences. Chan and Haigh each disclose a method for calculating a largest common substring that is completely independent from, and unrelated to any Levenshtein matrix. There is no suggestion that Kilpatrick's intrusion-detection system can be modified to calculate a largest common substring from the Levenshtein matrix, and no suggestion in Chan or Haigh that their largest common substring techniques can be adapted to use a Levenshtein matrix. Therefore, whether considered alone or in combination, the references still fail to suggest using Kilpatrick's Levenshtein matrix to calculate a largest common substring, instead of using the separate methods described by Chan and Haigh.

It is noted that now-canceled claim 2 previously recited features similar to those described above with respect to the independent claims. The Office Action asserts that Kilpatrick discloses these features at Figure 5, Table 2, and column 9, lines 31-45. As discussed during the interview, although these portions refer generally to hamming distances, there is no suggestion in Kilpatrick that the hamming distances can be used to identify or calculate the **longest common substring** between two strings as recited in claims 1, 6, and 14. In fact, Kilpatrick indicates that Levenshtein distances are preferable to hamming distances, as they "provide a smoother, more graduated distance metric" (col. 9, lines 30-31), effectively teaching away from the use of hamming distances. Kilpatrick never uses the hamming distances to

identify a largest common substring between two strings, or to do so based on entries in a Levenshtein matrix as recited in claim 1. Thus, Kilpatrick's use of hamming distances is at best tangential, and fails to suggest determining a substring corresponding to the longest diagonal within said Levenshtein matrix, the substring being the largest common substring of the first and second strings as recited in claims 1, 6, and 14.

For at least these reasons, the cited publications fail to disclose or suggest each and every feature in claims 1, 6, and 14, and the claims are allowable. Claims 3-5, 7-13, and 15-20 are allowable at least for the same reasons described with respect to claim 1, and are patentable for additional reasons. Withdrawal of the rejections is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 202-481-9900.

The Commissioner is authorized to charge any fees due or credit any overpayment to the deposit account of Townsend and Townsend and Crew LLP, Deposit Account NO. 20-1430.

Respectfully submitted,

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